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BIOLOGICAL EVALUATION
Ips lecontei in Flood-Damaged Trees

Thumb Butte and Crown King Districts
Prescott National Forest
Arizona

1970

On October 27 and 28, Pest Control personnel Charles Germain and Paul Buffam examined ponderosa pine trees felled by the Labor Day weekend floods on the Thumb Butte and Crown King Districts, Prescott National Forest. Scattered groups of trees in and adjacent to the channels of Crooks Creek, Turkey Creek, Arrastra Creek, and Little Wolf Creek were uprooted during the flood. Some of these trees contain heavy populations of the Arizona five-spined ips. We recommend that the potential for an outbreak be reduced by limbing trees over 4" d.b.h., bucking the trees into short lengths, piling the bolts in large openings, and covering the piles with polyethylene sheeting.

Technical Information

Insect - Arizona five-spined ips, Ips lecontei Sw.

Host - Ponderosa pine, Pinus ponderosa Laws.

Type of Damage - The flood waters during Labor Day weekend, 1970, felled trees from 2-20" d.b.h. in and adjacent to the channels of several of the major streams. Groups of 8-20 pole- to sawtimber-sized trees can be seen along or in the stream channels. These trees are adjacent to or within stands of susceptible pine. Many of the standing trees were damaged by rolling stones and floating debris. No standing trees show signs of being infested at present.

Extent of Infestation - Down material can be found in groups adjacent to or within the channels of Crooks Creek, Turkey Creek, Arrastra Creek, and Little Wolf Creek. Damaged standing trees can also be found in the same areas.

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Biological Information

Methods - Infested trees at Crooks Creek near Palace Station and at Turkey Creek near the Arrastra Creek mergence were sampled. Five 6X6-inch samples were taken at each location and the number of parent galleries and live adults, eggs, larvae, and pupae counted and recorded.

Results - A moderate to heavy population of ips was found in some trees at both areas as shown below:

Area	Parent galleries	Adults	Eggs	Larvae	Pupae
	------Ave. no. per sq. ft. of bark surface-------				
Crooks Cr.	14.4	76.0	20.0	21.6	13.6
Turkey Cr.	10.4	28.8	6.4	45.6	19.2

Down trees were also examined on Wolf Creek on Road 67. Ips populations were present to some degree in at least 30 percent of these trees.

Discussion

Heavy concentrations of down trees resulting from the flood were found at several locations. About half of the trees examined were infested with I. lecontei to some extent--tops of some trees, entire lengths of others. Most of the down trees are shaded and in a rather damp environment (in or adjacent to intermittent stream channels), so the material will probably not dry out too rapidly. The ips in these trees could possibly emerge in the spring and re-attack the uninfested parts before attacking surrounding standing trees. This could result in a larger, more aggressive ips population. Many of the standing trees were damaged in the flood--either directly by being hit by rocks or debris or indirectly by exposing the roots. These trees should be quite susceptible in their weakened state.

The following approaches could be taken to eliminate or lessen the hazard posed by I. lecontei:

1. Spray all down trees with an ethylene dibromide in water solution before April 1, 1971. This method could result in contaminating the streams with ethylene dibromide for a short period of time, unless trees to be treated are hauled a minimum of 100 yards away from the stream channel prior to treatment.

2. Limb, buck, and pile all susceptible material and burn the piles. This method could result in some air pollution for a short period. Also, the piles may not dry out in time to burn complete enough for effective beetle control.

3. Limb and buck all susceptible material, pile this in large openings, and cover the piles with polyethylene sheeting. Inform the people of Prescott and vicinity that firewood is available at these locations after July 15, 1971.

Recommendation

We recommend that downed ponderosa pine trees over 4" d.b.h. be treated according to method number 3. This method should be as effective as the others and should have less detrimental effect on the ecology of the area. Checks should be made in late spring and early summer to see if any standing trees have been attacked.

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FOREST SERVICE
Region 3
517 Gold Avenue, SW
Albuquerque, New Mexico 87101

REPLY TO: 5230 Evaluation

NOV 13 1970

SUBJECT: Ips lecontei in Flood-Damaged Trees - Thumb Butte and Crown King Ranger Districts

TO: Forest Supervisor, Prescott NF

Enclosed are three copies of a biological evaluation report, made by Chuck Germain and Paul Buffam on October 27 and 28, of the potential ips problem resulting from the Labor Day floods. Standing trees within and adjacent to the affected stream channels are in danger unless the hazard is lessened or removed. Therefore, we recommend that large groups of downed trees over 4" in diameter be limbed, bucked, and piled, and the piles covered with polyethylene sheeting to kill the ips already in the downed material. If you wish to follow this recommendation, request funds by filling out forms 5200-10 and 1300-4 and submit them to the Division of Timber Management.

Logging slash from cutting in the Cold Springs Unit on the Thumb Butte District was also examined on October 27. The entomologists feel that the ips in this material will pose no problem as long as the piles are burned by April 1, 1971. If the slash is not burned by this date, the ips would emerge and attack surrounding green standing trees.

Enclosed are 5 maximum recording thermometers for Ranger Antonich's use in determining maximum temperatures within piles covered with polyethylene sheeting. If more are needed, please let us know.

Mark M. Johannesen

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Timber Management

Enclosures

cc: WO
WO FI&DR (2)
RM, Ft. Collins
RM, Albuquerque
SA (3)
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Ing. Humberto Moreno Noriega,
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